CLAIMS

1. An electronic distancing alert system comprising:

(i) a transmitting unit (10) positioned on a first body and comprising an encoder (13) associated with a signal modulating and transmitting circuit (14); and

(ii) a receiving unit (20) positioned on a second body and comprising a signal receiving and demodulating circuit (24) associated with a decoder (23);

the encoder (13) and the signal modulating and transmitting circuit (14) generating and transmitting an identifying code associated with a carrier wave, the identifying code being received by the receiving and demodulating circuit (24) and recognized by the decoder (23), which actuates a triggering circuit (27) upon distancing between the first body and the second body and absence of reception of the identifying code, the electronic distancing alert system being characterized in that:

a) the encoder (13) generates a plurality of identifying codes combinable with a plurality of different generation frequencies, which are transmitted by the transmitting unit (10) and received by the receiving unit (20),

b) the transmitting unit (10) and the receiving unit (20) being selectively and phase-synchronously switched on by a first control circuit (12) which controls the condition of a PLL transmitter (14) and a second control circuit (24) which controls the condition of a PLL receptor (24) for a transmitting period, and turned inoperable by the first control circuit (12) and the second control circuit (22) during the remaining period,

c) the receiving unit (20) being turned on prior to the transmitting unit (10) and the turned off after the transmitting unit (10) during the transmitting period, such that, the transmission of the plurality of identifying codes is transmitted by the transmitting unit (10) during the transmitting period.

2. A system according to claim 1, characterized in that the encoder (13) comprises an integrated circuit (CI13) provided with means of generating serial identifying codes.

3. A system according to claim 2, characterized in that the means of generating identifying codes comprise multiple combinations of enabled logic ports.

4. A system according to claim 3, characterized in that, at each combination of enabled logic ports, a different serial identifying code is generated at a determined frequency.

5. A system according to claim 1, characterized in that the signal modulating and transmitting circuit (14) comprises an integrated circuit (CI14) associated with a crystal oscillator (C100).

6. A system according to claim 5, characterized in that the signal modulating and transmitting circuit (14) modulates the identifying code to the carrier wave and transmits it at a free frequency.

7. A system according to claim 6, characterized in that the carrier wave is transmitted at a frequency of 434MHz.

8. A system according to claim 7, characterized in that the carrier wave is transmitted by means of radio frequency.

9. A system according to claim 1, characterized in that the transmitting unit (10) comprises a first control circuit (12) associated with a power supply (11).

10. A system according to claim 9, characterized in that the control circuit (12) actuates the signal modulating and transmitting circuit (14), which transmits the identifying code in a fraction of time corresponding to 15ms each 1 second.

11. A system according to claim 9, characterized in that the power supply (11) is a battery with nominal voltage of 3V.

12. A system according to claim 1, characterized in that the receiving and demodulating circuit (24) comprises an integrated circuit (CI24) operating at the same frequency as the modulating and transmitting circuit (14).

13. A system according to claim 12, characterized in that the receiving and demodulating circuit (24) receives data transmitted by the transmitting unit (10) and filters the identifying code from the carrier wave.

14. A system according to claim 1, characterized in that the decoder (23) comprises an integrated circuit (CI23) compatible with the integrated circuit (CI13) of the encoder (13) of the transmitting unit (10).

15. A system according to claim 14, characterized in that the decoder (23) identifies the presence and recognizes the identifying code transmitted by the transmitting unit (10), generating an output signal of positive logic level.

16. A system according to claim 14, characterized in that the decoder (23) identifies the absence and non-recognition of the identifying code transmitted by the transmitting unit (10), generating an output signal of null logic level.

17. A system according to claim 15 or 16, characterized in that the signal obtained at the output of the decoder (23) is transmitted to a comparator (26), which is associated with the alert triggering circuit (27).

18. A system according to claim 17, characterized in that the comparator (26) comprises a separation means between the first control voltage (ΔV) and a second varying voltage.

19. A system according to claim 18, characterized in that the comparison means corresponds to an electronic circuit (26) comprising an operational amplifier (A26) associated with a first resistor (R16) provided with an average resistance value, to a second resistor (R26) provided with a resistance value higher than that of the first resistor (R16), to a third resistor (R36) provided with a resistance value calculated from the control voltage (ΔV), to a capacitor (C26) and to a diode (D26).

20. A system according to claim 19, characterized in that the positive signal at the output of the decoder (23) charges the capacitor (C26), and the second varying voltage received by the comparator (26) is higher than the control voltage (ΔV).

21. A system according to claim 20, characterized in that the capacitor (C26) is charged by the first resistor (16) by means of a first potential difference

generated by the decoder (23).

22. A system according to claim 19, characterized in that the null signal at the output of the decoder (23) discharges the capacitor (C26), and the second varying voltage received by the comparator (26) is lower than the control voltage (ΔV).

23. A system according to claim 22, characterized in that the capacitor (C26) is discharged by means of the resistor (R26).

24. A systems according to claim 23, characterized in that the comparator (26) actuates the alert triggering circuit (27) when the second varying voltage is lower than the control voltage (ΔV).

25. A system according to claim 1, characterized in that the receiving unit (20) comprises a second control circuit (22) associated with a power supply (21).

26. A system according to claim 25, characterized in that the control circuit (22) actuates the signal receiving and demodulating circuit (24), which receives the identifying code in a fraction of time corresponding to 10ms each 1 second.

27. A system according to claim 25, characterized in that the power supply (21) is a battery with nominal voltage of 12V.

28. A system according to claim 1, characterized in that the receiving unit (20) comprises a memory circuit (25) associated with the decoder (23) by means of a key (CH1) and associated with the control circuit (22).

29. A system according to claim 28, characterized in that the actuation of the memory circuit (25) provides the phase synchronism between the transmitting unit (10) and the receiving unit (20).

30. A process of generating phase synchronism between a transmitting unit (10) and a receiving unit (20) of an electronic distancing alert system as defined in claims 1 - 28, the process comprising the steps of:

A) positioning the transmitting unit (10) and the receiving unit (20) turned on and close to each other;

B) actuating a button on the receiving unit (20) maintaining a key (CH1) closed for a determined period of time;

C) enabling a PLL receiver (24) on the receiving unit (20) to receive a signal with a identifying code from the transmitting unit (10) sending the signal to a decoder (23);

the process of generating phase synchronism between a transmitting unit (10) and a receiving unit (20) of an electronic distancing alert system being characterized in that it also comprises the following steps:

D) transmitting a signal obtained at the output of the decoder (23) to actuate a memory circuit (25) and synchronizing the receiving unit (20) to be operable synchronizing to the transmitting unit (10), the transmitting unit (10) functioning during a 15ms period per each second and the receiving unit (20) functioning during 10ms period per each second;

E) releasing the button on the receiving unit (20) opening the key (CH1).

31. A process according to claim 30, characterized in that, in step B, the closing of the key (CH1) maintained for a period of time substantially equal to 3 seconds.

32. A process according to claim 31, characterized in that, in the step of closing the key (CH1), at least one identifying code transmitted by the transmitting unit (10) is received by the receiving unit (20) by means of the signal receiving and demodulating circuit (24) and recognized by a decoder (23), which generates a positive output signal.

33. A process according to claim 32, characterized in that the positive signal generated by the decoder (23) in the step B initiates the step C, actuating the memory circuit (25).

34. A process according to claim 33, characterized in that, during the step C, the memory circuit (25), stores the positive signal generated by the decoder (23)

and actuates a second control circuit (22).

35. A process according to claim 34, characterized in that the second control circuit (22) operates in synchronism with a first control circuit (12).